Health Consultation

Ridgefield Door-to-Door Follow-up
Private Well Survey

Pacific Wood Treating Corporation
(a/k/a Ridgefield)
Ridgefield, Clark County, Washington

EPA FACILITY ID: WAD009422411

May 19, 2004

Prepared by

The Washington State Department of Health
Under a Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

Foreword

The Washington State Department of Health (DOH) prepared this health consultation in cooperation with the Agency for Toxic Substances and Disease Registry (ATSDR). ATSDR, a part of the U.S. Department of Health and Human Services, is the principal federal public health agency responsible for health issues related to hazardous waste. This health consultation was prepared in accordance with methodologies and guidelines that ATSDR developed.

This health consultation is designed to identify and prevent harmful human health effects that result from exposure to hazardous substances in the environment. Health consultations focus on specific health issues so that DOH can respond to requests from concerned residents or agencies for health information on hazardous substances. DOH evaluates sampling data collected from hazardous waste sites, determines whether exposures have occurred or could occur, reports any potential harmful effects, and recommends actions to protect public health. The findings in this report are relevant to site conditions at the time of this health consultation and should be re-evaluated if site conditions or land use change in the future.

For additional information or questions regarding DOH or the contents of this health consultation, please call the health advisor who prepared this document:

Lenford O'Garro
Washington State Department of Health
Office of Environmental Health Assessments
P.O. Box 47846
Olympia, WA 98504-7846
(360) 236-3376
FAX (360) 236-3383
1-877-485-7316
Web site: www.doh.wa.gov/ehp/oehas/sashome.htm

For more information about ATSDR, contact the ATSDR Information Center at 1-888-422-8737 or visit the agency's Web site: www.atsdr.cdc.gov/.

Glossary

Acute	Occurring over a short time (compare with **chronic**).
Agency for Toxic Substances and Disease Registry (ATSDR)	The principal federal public health agency involved with hazardous waste issues, responsible for preventing or reducing the harmful effects that exposure to hazardous substances has on human health and quality of life. ATSDR is part of the U.S. Department of Health and Human Services.
Aquifer	An underground formation consisting of materials such as sand, soil, or gravel that can store and/or supply groundwater to wells and springs.
Cancer Risk Evaluation Guide (CREG)	The concentration of a chemical in air, soil, or water that is expected to cause no more than one excess cancer case in a million persons exposed over a lifetime. The CREG is a *comparison value* used to select contaminants of potential health concern and is based on the *cancer slope factor*.
Cancer Slope Factor (CSF)	A number assigned to a cancer-causing chemical that estimates its potential to cause cancer in humans.
Carcinogen	Any substance that causes cancer.
Chronic	Occurring over a long time (more than 1 year) (compare with **acute**).
Comparison value	Calculated concentration of a substance in air, water, food, or soil that is unlikely to cause harmful (adverse) health effects in exposed persons. The CV is used as a screening level during the public health assessment process. Substances found in amounts greater than their CVs might be selected for further evaluation in the public health assessment process.
Contaminant	A substance that is present either in an environment where it does not belong or at levels that might cause harmful (adverse) health effects.

Dose (for chemicals that are not radioactive)	The amount of a substance to which a person is exposed over a given time period. Dose is a measurement of exposure. Dose is often expressed as milligrams (amount) of a substance encountered or consumed per kilogram (a measure of body weight) per day (a measure of time). In general, the greater the dose, the greater the likelihood of an effect. An "exposure dose" is how much of a substance is encountered in the environment. An "absorbed dose" is the amount of a substance that actually got into the body through the eyes, skin, stomach, intestines, or lungs.
Environmental Media Evaluation Guide (EMEG)	A concentration in air, soil, or water below which adverse non-cancer health effects are not expected to occur. The EMEG is a *comparison value* used to select contaminants of potential health concern and is based on ATSDR's *minimal risk level* (MRL).
Environmental Protection Agency (EPA)	The federal agency that develops and enforces environmental laws to protect the environment and the public's health.
Exposure	Contact with a substance through swallowing, breathing, or touching (skin or eyes). Exposure may be short-term (**acute exposure**), of intermediate duration, or long-term (**chronic exposure)**.
Groundwater	Water beneath the earth's surface in the spaces between soil particles and between rock surfaces (compare with surface water).
Ingestion	The act of absorbing something by eating, drinking, or mouthing. A hazardous substance can enter the body this way (see route of exposure).
Ingestion rate	The amount of an environmental medium that could typically be ingested on a daily basis. Units for IR are usually liters/day for water and milligrams/day for soil.
Lowest Observed Adverse Effect Level (LOAEL)	The lowest tested dose of a substance that has been reported to cause harmful (adverse) health effects in persons or animals.
Maximum Contaminant Level (MCL)	A drinking water regulation established by the federal Safe Drinking Water Act. It is the maximum permissible concentration of a contaminant in water that can be delivered to the free flowing outlet of the ultimate user of a public water system. MCLs are enforceable standards.

Minimal Risk Level (MRL)	An ATSDR estimate of daily human exposure to a hazardous substance at or below which that substance is unlikely to pose a measurable risk of harmful (adverse), noncancerous effects. MRLs are calculated for a route of exposure (inhalation or oral) over a specified time period (acute, intermediate, or chronic). MRLs should not be used as predictors of harmful (adverse) health effects (see **reference dose**).
Monitoring wells	Special wells drilled at locations on or off a hazardous waste site so that water can be sampled at selected depths and studied to determine the movement of groundwater and the amount, distribution, and type of contaminant.
No apparent public health hazard	A category used in ATSDR's public health assessments for sites at which human exposure to contaminated media might be occurring, might have occurred in the past, or might occur in the future, but at which the exposure is not expected to cause any harmful health effects.
No Observed Adverse Effect Level (NOAEL)	The highest tested dose of a substance that has been reported to have no harmful (adverse) health effects on persons or animals.
No public health hazard	A category used in ATSDR's public health assessment documents for sites at which persons have never and will never come into contact with harmful amounts of site-related substances.
Oral Reference Dose (RfD)	An amount of chemical ingested into the body (i.e., dose) below which health effects are not expected to occur. EPA publishes RfDs.
Parts per billion (ppb)/Parts per million (ppm)	Units commonly used to express low concentrations of contaminants. For example, 1 ounce of trichloroethylene (TCE) in 1 million ounces of water is 1 ppm. 1 ounce of TCE in 1 billion ounces of water is 1 ppb. If one drop of TCE is mixed in a competition-size swimming pool, the water will contain about 1 ppb of TCE.
Plume	The volume of a substance that moves from its source to places away from the source. Plumes can be described by the volume of air or water they occupy and the direction they move. For example, a plume can be a column of smoke from a chimney or a substance moving with groundwater.
Remedial investigation	The CERCLA process for determining the type and extent of hazardous material contamination at a site.
Route of exposure	The way persons come into contact with hazardous substances. Three routes of exposure are breathing [inhalation], eating or drinking [ingestion], and contact with the skin [dermal contact].

Purpose

The Washington State Department of Health (DOH) conducted a survey to identify existing private wells near the former Pacific Wood Treating Corporation (PWT) site located in the City of Ridgefield, Clark County, Washington. This health consultation summarizes the procedure and results of the well survey. DOH prepares health consultations under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR).

Background and Statement of Issues

The former PWT facility, on about 41 acres, is located at 111 West Division Street, Ridgefield Washington. Burlington Northern Railroad is on the east border of the site, and Ridgefield Marina is on the south. Lake River, a side channel of the Columbia River, forms the west border, and Carty Lake and Ridgefield National Wildlife Refuge are on the north border. The facility operated from 1964 to 1993, pressure-treating specialty wood products with pentachlorophenol (PCP), creosote and copper/chromium/arsenic (CCA) solutions. Several site and facility investigations conducted over the years have shown groundwater contamination on and off the site.[1, 2, 3, 4] Pentachlorophenol (PCP) (0.31- 4.0 micrograms per liter [Fg/L]) and naphthalene (1Fg/L), a polycyclic aromatic hydrocarbon (PAH), were detected in City water-supply wells in the 1980s. Subsequently, these wells were abandoned as drinking-water sources and were replaced with new wells about ½-mile upgradient.[4]

Several monitoring wells have been installed in and around the PWT site. The plume of contaminated groundwater in the shallow aquifer has moved north towards Carty Lake and Ridgefield National Wildlife Refuge. Maximum levels of 16 µg/L PCP and 9.4µg/L trichloroethylene (TCE) have been found in off-site groundwater wells near Carty Lake and Ridgefield National Wildlife Refuge.[3, 5] A steam-injection and extraction system was installed in 2002 to remove contaminants from groundwater at the PWT site.[5, 6, 7]

The survey area was defined using Arcview® geographic information system (GIS) software by drawing a 500-foot radius around the PWT site. The resulting map was provided to the Clark County Department of Assessment and Geographical Information System (GIS) to obtain a list of tax parcel numbers and the names and addresses of property owners within the area to be surveyed. All property owners in the survey area were sent the attached letter and survey form (Appendix A) to submit well-construction information. The intent of the survey was to confirm the lack of private drinking water wells in the area near PWT. Thirty-six percent of owners responded to the mailed survey, all respondents said they were either on a municipal water system or had no well or water source. This follow-up door-to-door survey was recommended by because the response to the original mailed survey was low.

Discussion

In a previous health consult, DOH recommended a door-to-door survey of wells in the area.[8] Discussions with the Washington State Department of Ecology and the Southwest Washington Health District indicated that no drinking water wells are located near the PWT site. However, DOH did not locate any record of the well survey done for the area. This door-to-door follow-up survey was done to find all those who did not respond, in an attempt to identify any wells that might be exposure points for contaminants in groundwater originating at PWT.

A total of 56 mail surveys were sent out on February 10, 2003, to the owners, with 20 owners responding. All respondents said they were either on a municipal water system or had no well or water source. With only thirty-six percent of owners responding to the mailed survey, a door-to-door follow-up survey was conducted on October 2, 2003, to reach the 36 non-respondents (i.e., did not respond, returned mail). The 36 non-respondents had a total of 43 parcels of land. Visual inspection of the area eliminated 7 of the 43 parcel numbers (6 had no buildings and 1 had a detached car garage). The remaining 36 parcels of land in the survey area, contain homes including 1 abandoned home and 1 new home under construction, were all found to be on municipal water system.

The door-to-door follow-up found no private wells located in the surveyed area. The mail survey provided more information than the door-to-door survey, as the respondents were more likely to answer more questions. However both survey methods provided the essential information, which was whether or not a private well existed for drinking water purposes.

Child Health Considerations

The unique vulnerabilities of infants and children demand special attention in communities that have contamination of their water, food, soil, or air. The potential for exposure and subsequent adverse health effects is often increased for younger children compared with older children or adults. ATSDR and DOH recognize that children are susceptible to developmental toxicity that can occur at levels much lower than those causing other types of toxicity.

This consult was to evaluate the door-to-door follow-up well survey, not to evaluate chemical data. A previous health consult prepared by DOH dealt with evaluation of past contamination in the City's drinking water supply, which showed in a worst-case scenario, the levels of naphthalene and PCP in the City's drinking water would not be expected to result in adverse health effects for children.

Conclusions

1. No drinking-water wells were identified in the survey. Although the initial mailed out response rate was only 36%, the door-to-door follow-up survey provides reassurance that no drinking-water wells are located near the PWT site.

2. No public health hazard exists from exposure due to private drinking water wells.

Recommendations

- No drinking-water wells should be drilled in the contaminated area or immediately down gradient of the site. Future human exposure pathways would be of concern if well were drilled in this area for drinking water.

Public Health Action Plan

This recommendation will be communicated to Ecology, as the lead regulatory agency.

Preparer of Report

Lenford O'Garro
Washington State Department of Health
Office of Environmental Health Assessments
Site Assessment Section

Designated Reviewer

Wayne Clifford, Manager
Site Assessment Section
Office of Environmental Health Assessments
Washington State Department of Health

ATSDR Technical Project Officer

Debra Gable
Division of Health Assessment and Consultation
Agency for Toxic Substances and Disease Registry

References

1. Ecology and Environment. Pacific Wood treating site assessment report, TDD:96-02-0024. Prepared for U.S. Environmental Protection Agency, contract no. 68-W6-0008. Seattle: Ecology and Environment, Inc.1996.

2. Hart Crowser, Inc. RCRA facility investigation site characterization work plan, Pacific Wood Treating Corporation, Ridgefield, WA. J-5036-02. Portland, Oregon: Hart Crowser, Inc.1992.

3. Buck, Jeremy. Preliminary assessment to determine Superfund site impacts on the Ridgefield National Wildlife Refuge, Project ID: 13420-1216-1C58. Portland, Oregon: Oregon State Office of the U.S. Fish and Wildlife Service. 2000.

4. Ecology and Environment. Memorandum to Lew Kettle (DOH) from Dawn Hartley concerning human health concerns at Pacific Wood Treating. Seattle: Ecology and Environment, Inc.1995.

5. Washington State Department of Ecology. Contamination confirmed in Ridgefield [Washington] refuge. Department of Ecology news release - May 2001. Seattle: Washington State Department of Ecology. Toxics Cleanup Program.

6. Washington Public Ports Association: Ridgefield starts steam-cleaning site. Washington Ports Members Letter August 2002. Olympia, WA: Washington Public Ports Association.

7. Ellis, Margaret. High-tech cleanup on tap: Firm plans to use steam to extract toxic chemicals. The Columbian 2002 June 24;Sect. A: 1.

8. Washington State Department of Health. Public Health Consultation for Ridgefield Private Well Survey (a/k/a Pacific Wood Treating Corporation), Ridgefield, Clark County, Washington, EPA FACILITY ID: WAD009422411, September 30, 2003.

Appendix A

Letter and Well Survey

February 10, 2003

Dear Resident:

The Washington State Department of Health is requesting information on drinking water wells in your area. We need this information to ensure that groundwater contaminants at the former Pacific Wood Treating site are not threatening nearby drinking water wells. While it is unlikely that these contaminants would move in your direction, we want to know what wells might be in the area. We would then determine if sampling and analysis for these contaminants is necessary to ensure that your drinking water is safe.

This information will not be used for any other purpose and will be available to the public only by formal request. Your participation in this survey is voluntary. You will not lose any services or benefits if you choose not to participate. If you do use a private well, your participation will allow us to assess the need for sampling and, if necessary, evaluate sample results.

Please take a few minutes and fill out the enclosed form and return it to us according to the instructions given on the form. We ask that you fill it out regardless of your water source so that we know you have received this request.

If you have any questions, please do not hesitate to call me toll-free at 1-877-485-7316 or (360) 236-3376. Your cooperation is appreciated.

Sincerely,

Robert Duff
Manager
Site Assessment Section

Enclosure (Survey)

Ridgefield Neighborhood Water Well Survey

To help us identify all water wells in your area, please fill out this form as completely as possible.

1. Your name:

2. Your address:

(Please make address corrections directly on this form)

3. Your telephone number: _____

What are the best times to call you?: _____

4. What is your source of tap water? (**check only one**)

____ Municipal (city) water system

____ Small community (neighborhood) water system → Water system name: Operator's name: Operator's phone #:

____ Private well (serving 1 or 2 houses) → **If you use a private well, please indicate:**

____ Don't know

Name of well owner: _____ Phone #: _____
(if someone else)

Location of the well (for example, "100 feet behind my house", or "behind the house at 2011 Oak Rd.")

Well depth: _____ Year drilled: _____

Thank you for your help. We will contact you if we think that your well should be tested.

Certification

This Health Consultation was prepared by the Washington State Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was begun.

_____

Debra Gable
Technical Project Officer,
SPS, SSAB, DHAC
ATSDR

The Division of Health Assessment and Consultation, ATSDR, has reviewed this public health consultation and concurs with the findings.

_____

Roberta Erlwein
Section Chief,
SPS, SSAB, DHAC
ATSDR